ABSTRACT OF THE DISCLOSURE

When numerically integrating an integrand function A over an unbounded domain, a vector map f converts an m ($m \geq 1$) -dimensional vector into an m-dimensional vector wherein a multidimensional density function ρ of the limiting distribution resulting from repeatedly applying the map f to a predetermined m-dimensional vector u is analytically solvable. A first storage unit stores an m-dimensional vector x, a second storage unit stores a scalar value w, a first computing unit computes a vector $x' = f(x)$, a second computing unit computes a scalar value $w' = A(x)/\rho(x)$, an update unit updates values in the first and second storage units and by storing the vector x' on the first storage unit and adding the scalar value w' to a value to be stored in the second storage unit, and an output unit computes a scalar value $s = w/(c+1)$ when the number of update times by the update unit becomes c ($c \geq 1$) and outputs the result.